



The double dividend of social information in charitable giving: Evidence from a framed field experiment

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ABSTRACT

Signaling, as well as receiving social information on charitable giving, is known to stimulate individuals' donation. In this respect, we conduct a framed field experiment to analyze the interplay between signaling or receiving social information and donors' inherent level of altruism. Intuitively, respondents with a high level of altruism donate significantly more than those with a lower level. In addition, we find that having the chance to set a positive example as well as being exposed to such enhances charitable giving, whereas the opportunity of image signaling alone does not. Furthermore, setting a positive example yields the highest donation rate among respondents with a high level of altruism, while being exposed to such yields the highest donation rate among respondents with a low level of altruism. The effect on overall donations by confronting participants with a social descriptive norm (i.e., previous donations) is significantly stronger for those with a low level of altruism, leading to an alignment of the donations by both types of donors. These heterogeneous results suggest that adapting appeals to potential donors' inherent levels of altruism has the potential to significantly increase the efficiency of charitable campaigns.

1. Introduction

According to the [German Donations Council \(2022\)](#), the annual volume of donations from private households in Germany reached a new high of 5.8 billion euros in 2021. Within this development, however, different trends can be observed. On the one hand, those who donate, are donating on average more frequently (6.8 times in 2021 vs. 4.3 in 2005; +58%) and higher amounts per donation (€42 in 2021 compared to €31 in 2005; +35%). On the other hand, the total share of donors among the German population aged 10 years or older decreased drastically from 51% in 2005 to only 30% in 2021. In light of such shrinking – but at the same time, more potent – target group, the explicit targeting of potential donors becomes increasingly important for cost-efficient fundraising. To this end, our paper analyzes heterogeneities in the effectiveness of prominent charitable appeals across respondents who differ in their altruistic motives.

Charitable organizations became quite creative in using insights of behavioral economics to attract donors. This includes using quality certificates, setting defaults, using subsidy mechanisms such as rebates and matching grants, or evoking positive emotions (e.g., [Adena et al., 2019](#); [Altmann et al., 2019](#); [Gandullia & Lezzi, 2018](#); [Goenka & van Osselaer, 2019](#); [Knutsson et al., 2019](#)). An appeal that is widely used and often investigated is making donations public (e.g., [Alpizar et al., 2008a, 2008b](#); [Alpizar & Martinsson, 2013](#); [Dana et al., 2006](#); [List](#)

[et al., 2004](#); [Rege & Telle, 2004](#); [Soetevent, 2005](#)). In such a setting, both signaling information about one's donation to others, as well as receiving information about others' donations, has positive effects on giving behavior. Each case involves multiple psychological channels that are at work simultaneously.

Overall, we consider three different appeals within this paper. First, the option to inform others about the own donation can positively influence own giving behavior due to, for example, the possibility to signal altruism or wealth. This is commonly referred to as “reputation” (e.g., [Harbaugh, 1998a, 1998b](#)). Second, the publication of one's donation can induce utility gains for donors by being perceived as a “role model” ([Andreoni & Petrie, 2004](#)). Having the chance to signal a charity's quality to others may increase donations in order to strategically influence their donations, at least for individuals who believe that contribution levels are strategic complements ([Vesterlund, 2003](#)). Third, when receiving information about others' donations, positive effects can be explained, for example, by additional information about the quality of a charity ([Hermalin, 1997](#); [Potters et al., 2007](#)), additional information about altruism of others ([Ostrom, 2000](#)), or by social effects such as the utility respondents gain when they “follow the herd” and behave in line with social norms (e.g., [Bernheim, 1994](#); [Jones & Linardi, 2014](#)).

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Against this background, it is essential to take different motivations of donors into account when targeting appeals for charitable giving. This is not only because charities not engaging in optimal targeting waste significant resources (Cagala et al., 2021), but also because public recognition may even backfire for certain types of donors (e.g., Simpson et al., 2017; Winterich et al., 2013). Recently, studies have attempted to identify different donor types based on individuals' inherent levels of altruism (e.g., Gandullia et al., 2020; Gangadharan et al., 2018). In particular, Karlan and Wood (2017) find that additional information on the effectiveness of a charity program significantly increases the likelihood – and amount – that people considered altruists will donate, while producing opposing effects among those who are more driven by feelings of warm-glow. Aside from that work, evidence on the interaction between altruistic donor types and charitable appeals is limited.

To shed further light on the heterogeneous effects of social information and recognition on charitable giving of subjects who differ in their altruistic motivation, this study employs a framed field experiment based on a modified dictator game with a follow-up survey. We build upon a validated survey instrument of Falk et al. (2018, 2016) to differentiate subjects with high and low levels of altruism. Furthermore, we compare a control group, *Baseline*, with settings in which subjects can (a) publish their names and donations online to gain *Reputation*, (b) act as a *Role model* by disclosing their name and donations on a list that will be shown to subsequent participants, or (c) receive this list of previous donations prior to their own donation decision and thus *Follow the herd*.

Our results reveal that only the *Role model* and *Follow the herd* treatments increase overall giving and that these effects are particularly driven by individuals with low altruistic motives. Furthermore, we find the *Role model* treatment to increase the likelihood to donate among individuals with high altruistic motives, whereas the *Follow the herd* treatment increases donation rates particularly among individuals with low altruistic motives. Furthermore, *Follow the herd* has a significantly stronger positive impact on overall donations of low altruists compared to high-level altruists to the extent that both types of donors give at the same level. Against this background, we conclude that fundraisers can significantly increase their cost-effectiveness by providing social information to individuals with low altruistic motives, while offering individuals with high altruistic motives the possibility to be role models. Jointly, this can enable a double dividend in charitable giving.

The remainder of this paper is organized as follows: Section 2 gives an overview on previous research. Section 3 describes the experimental procedure and design as well as the data used in this study and predictions derived from related literature. Subsequently, we discuss the descriptive and empirical analysis in Section 4, followed by a brief discussion in Section 5 and a conclusion in Section 6.

2. Literature review

Individuals give to charity for a variety of motives (for an overview, see Bekkers & Wiepking, 2011; Schokkaert, 2006) which typically guide donation decisions simultaneously (Batson & Shaw, 1991). A frequently studied motive is that of reputation. For example, Winterich et al. (2013) show that the option to publicize one's contribution enhances individuals' donations. In this context, the theoretical model presented by Holländer (1990) assumes that individuals want their behavior to be socially approved by others. By doing something “good” for the community, donors can signal altruism (Bénabou & Tirole, 2006; Harbaugh, 1998a, 1998b; Samek & Sheremeta, 2017) or wealth, success, reliability and other characteristics (Glazer & Konrad, 1996; Mahmud & Wahhaj, 2019) to their peers, which in return is rewarded with reputational gains. In particular, in a society that regards generosity as positive, individuals give donations in order to receive such social recognition (Schokkaert, 2006). Image signaling through charitable giving was also found to offer donors personal advantages based on

indirect reciprocity (Elfenbein et al., 2012; Fehrler & Przepiorka, 2016), such as gains in political reputation and income (Milinski et al., 2002). In line with this literature, we implement a *Reputation* treatment in our field experiment.

Furthermore, Andreoni and Petrie (2004) reveal that the option of disclosure increases donations beyond pure reputation-seeking. This is particularly due to the perceived potential to influence others in their decision (Reinstein & Riener, 2012), suggesting that acting as a role model can induce further utility gains. The theoretical model developed by Vesterlund (2003) proposes that individuals who care about the provision of a public good may wish to set positive examples for others. Because these role models must believe that their behavior will have a positive effect on the amount that observing followers will donate (Karlan & McConnell, 2014), they can temporarily benefit from a perceived matching grant, which promotes cooperative behavior (Eckel & Grossman, 2003; Karlan & List, 2007) and increases donations' efficacy (Reinstein & Riener, 2012). This effect has been found to be particularly strong in cases in which a charity's quality is unknown (Andreoni & Petrie, 2004; Potters et al., 2007). Finally, Eckel and Grossman (2003) suggest that a perceived matching grant influences not only a donations' efficacy, but also the donor's subjective feeling of warm-glow, in case they experience their donation to be the sum of their own contribution and the perceived matching grant. Based on these findings, we additionally implement a *Role model* treatment in the present study.

However, literature seeking to disentangle reputation from role model effects is not fully conclusive. Reinstein and Riener (2012) as well as Karlan and McConnell (2014), who conduct multiple-stage dictator games in a lab experiment, isolate the reputation and the role-model incentive by analyzing whether the disclosure of donations induces different effects if it is done before or after other participants must decide the amount of their donation. Karlan and McConnell (2014) find no additional effect of the role-model treatment on top of the reputation treatment. Therefore, they conclude that participants signal their social status rather than a charity's quality. In contrast, Reinstein and Riener (2012) show that if participant's identity and donation are revealed, those who can act as a role model donate significantly more than those who can only publicize their donation after all others made their donation decision. Nevertheless, both treatments significantly increase donations compared to a *Baseline* (no reporting). Utilizing a follow-up questionnaire, Reinstein and Riener (2012) show that the role models' increased donations are based mostly on the expectation of attracting a larger number of subsequent donors, rather than expecting them to donate higher amounts. In light of these opposing findings from the lab, our paper contributes to the literature by disentangling the motives of reputation and being a role model in the field.

Finally, not only signaling, but also receiving information on previous contributions, has been found to positively stimulate further donations (e.g., Goeschl et al., 2018; Shang & Croson, 2009; Smith et al., 2014). In particular, Karlan and List (2020) provide empirical evidence that quality signals – especially by large-scale donors – are an effective method to enhance subsequent donations. This effect is partially driven by a reduction of donors' perceived uncertainty about a charity's quality (Goeschl et al., 2018; Potters et al., 2007; Vesterlund, 2003). The importance of quality signaling is also emphasized by Varian (1994) and Rondeau and List (2008). In addition, observing others' contributions to a public good can provide information about the previous donors' level of altruism and in turn increase follow-up contributions (Ostrom, 2000). In this regard, Reinstein and Riener (2012) find that an increase in a role models' donation significantly increased a followers' contribution only if the leader's identity was revealed alongside the donation. Concordantly, social effects, such as the utility respondents gain when they behave in line with social norms, additionally stimulate giving (e.g., Bernheim, 1994). To this end, social norm interventions often consist of displayed average values

(e.g., Richter et al., 2018; Schultz et al., 2007). However, Jones and Linardi (2014) show also that when receiving information on two prior donations, individuals are drawn towards the social norm (i.e., the average of the previous contributions). Against this background, we implement a third treatment, namely *Follow the herd*, in our experiment, where subjects receive information on all individual donations made by respondents in the *Role model* treatment who agreed to have their name and donation published.

Building on the assessment of different appeals, it is important to consider heterogeneities in treatment effects in order to increase the cost-effectiveness of charity campaigns (e.g., Karlan & Wood, 2017; Knutsson et al., 2019; Sanders, 2017). To this end, scientists have sought to identify relevant information and specific donor types to optimize donor targeting. Landry et al. (2006), for example, distinguish between active donors (i.e., warm-list donors) and individuals who have not yet donated (i.e., cold-list donors). Cagala et al. (2021) show that the distinction between warm-list and cold-list donors, in combination with spatial information, can be used to significantly increase fundraising revenue. Following this distinction, Landry et al. (2010) find that the likelihood of donating, as well as average donations, are generally higher for warm-list donors. However, cold-list donors are more affected by the presence of unconditional gifts, to the extent that their donation behavior is similar to that of warm-list donors. In fact, Landry et al. (2010) find that the provision of gifts (and in particular, small gifts) can crowd out contributions of warm-list donors, suggesting a potential conflict between intrinsic and extrinsic motives for giving. Similarly, Ariely et al. (2009) confirm that extrinsic monetary incentives may crowd out internal donation motives in public settings. Such backfiring of public recognition for certain types of donors is confirmed in several other studies as well (e.g., Jones & Linardi, 2014; Simpson et al., 2017; Winterich et al., 2013).

These findings are also in line with a theoretical model of “impure altruism” by Andreoni (1989, 1990), proposing that the utility of giving consists of both an (expected) objective utility from the provision of a public good as well as a subjective utility that includes the positive feeling of a warm-glow while giving. In this model, pure altruists who value the provision of a public good decide upon their donations more strategically, whereas non-altruistic giving is typically based on subjective utility. Furthermore, several papers elaborated the fact that subjective utility can be influenced by social effects (DellaVigna et al., 2012), context-dependent norms (Konow, 2010) or image motivation (Ariely et al., 2009).

Karlan and Wood (2017) follow this differentiation of emotion-based (i.e., less altruistic) and strategic (i.e., more altruistic) decision-making and link them to System I and System II decisions, respectively, as proposed by Kahneman (2003). Using high prior donations as a proxy for altruistic donation motives, Karlan and Wood (2017) show that additional information about a charity’s effectiveness positively affects the likelihood to donate and the donated amount among altruistic individuals, whereas participants with low altruistic motives do not appreciate such information and actually give less. Also, Gangadharan et al. (2018) and Gandullia et al. (2020), who find that warm-glow donors are more likely to donate cash than in-kind, conclude that such donors are likely less concerned about a donation’s purpose.

Based on the discussed literature, it is crucial to take donors’ inherent level of altruism into account when targeting appeals for charitable giving, especially when donations are to be published. Thus, in addition to the general treatment effects, this paper investigates the influences of the aforementioned appeals on two different types of people: those with low levels of altruism and those with high levels.

3. The experiment

3.1. Experimental procedure and design

The framed field experiment was embedded in a survey on regional electricity tariffs using personal interviews between October 4 and

November 2, 2018. For the first five days, the survey took place in the center of Kaufungen, a suburb of the German city of Kassel and the location, where the “regional electricity” referred to in the survey is produced by wind farms. Afterwards, data was first collected in highly frequented locations in the pedestrian zone and then also in the entrance area of a large grocery store in Kassel, where almost 80% of the observations were obtained. Multiple locations not only minimize neighborhood effects, but also enable reaching a wider cross-section of society (e.g., Alt & Gallier, 2022).¹ The individual interviews consisted of three steps, which are depicted in Fig. 1.

The recruiting procedure and collection of data was conducted as follows: Two of the five interviewers asked by-passing people if they were interested in participating in a survey conducted by the university of Kassel on electricity contracts in which they have the opportunity to win €50. In case a person agreed to participate, they were asked to meet a waiting interviewer at one of the three standing tables. The experimenter then carried out the survey alone with the respondent on a tablet. Participants were not informed about the donation experiment at this time.² All experimenters had practiced the survey before, wore name tags and dressed discreetly. Furthermore, the questionnaire was read out loud, to ensure that all participants received identical information.

After the experimenters informed respondents that they have a 10% chance of winning €50,³ that participation was voluntary and that their answers would remain anonymous, they directly entered the experiment. Unbeknownst to them, participants were allocated to one out of four experimental groups. In each group, we asked participants whether they would like to donate their potential reward or a share of it to the local children’s library in Kaufungen or Kassel, respectively. The maximum possible amount was fixed at the reward of €50.

The first three treatments were implemented from October 4 to October 23, 2018. Respondents were randomly assigned to either the *Baseline*, *Reputation* or *Role model* treatments. Respondents in the *Baseline* group were directly asked whether they were willing to donate everything or a share of their reward, in case they win. Respondents in the *Reputation* group were informed previous to their donation decision that we would publish their name and donation decision on the homepage of the University of Kassel and in a press release if they were interested. Comparing this treatment to the *Baseline* allows us to analyze the influence of reputation-seeking motives on donation behavior. Respondents in the *Role model* group made their donation decision knowing that they could agree to get their names and donation published on a list, which we would provide to participants in a subsequent phase of the survey. Thus, when deciding upon their donation, subjects were aware that they could set a positive example for others. This setting allows us to analyze the extent to which the *Role model* motive alters donation behavior.

The fourth treatment was implemented from October 24 to November 2, 2018. All respondents in this phase of the experiment were assigned to the *Follow the herd* group. Prior to their donation decision, respondents in the *Follow the herd* group were shown the complete list of examples,⁴ which consisted of donation decisions from the *Role model* group. Therefore, participants in the *Follow the herd* group were aware

¹ Summary statistics for both locations are displayed in Table A.3. We find modest differences between the two samples, which we discuss in the Appendix below the table. Furthermore, we control for location-fixed effects in the econometric analysis.

² Due to this approach, we could not count the number of people who did not agree to participate in the survey and thus cannot provide a participation rate. Nevertheless, 97.21% of those who agreed to participate in the survey also completed it.

³ The probabilistic incentive approach is common in similar studies; for example, Diederich and Goeschl (2017) randomly chose 2% of 2,440 respondents and Falk et al. (2021) randomly chose 25 out of about 6,000 respondents.

⁴ The “donation list” is displayed in Table A.9 in the Appendix.

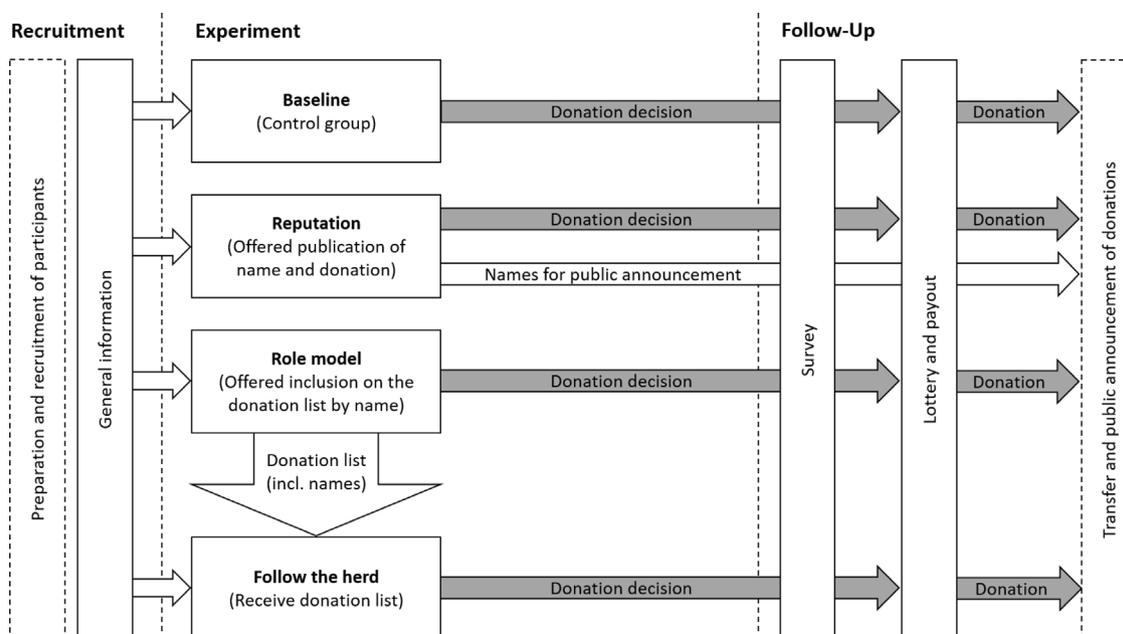


Fig. 1. Overview of the Experiment.

that others had been generous for this charity. This allows us to analyze follower effects.

As the final step of the interviews, all participants entered the follow-up survey regarding regional electricity tariffs. This involved questions regarding their current electricity consumption behavior as well as a stated choice experiment on electricity tariffs, which will not be considered in the following. Afterwards, participants were asked questions on their individual preferences, values, and socio-demographic characteristics;⁵ lots were then drawn from pots. Winners were paid out in cash according to their donation decisions. The money donated was withheld for the donations to the children's libraries, which we made in the participants' name after the experiment. On average, respondents took 21:40 min to complete the entire interview.

3.2. Data and predictions

Of the 651 people who took part in the experiment, 67 won the €50. In sum, €1,490 were donated to the youth libraries (€365 in Kaufungen and €1,125 in Kassel). Across all treatment groups, 73% of all participants were willing to donate and overall donations averaged €22.87, which represents 45.7% of the potential win.⁶ In comparison to previous donation experiments in which respondents donated to prosocial or environmental causes, our experimental outcome variables in the *Baseline* treatment (i.e., the 65% likelihood to donate and the average donation of about 40% of the potential win) appear realistic, albeit at the upper bound. Similar to our design, [Alt and Gallier \(2022\)](#) implement a donation experiment within a larger street survey. For the treatment most related to our *Baseline* group, i.e. without prior manipulation, they report a donation rate of 33% and average donations of 25% of the total payoff. Furthermore, [Goeschl et al. \(2018\)](#) report that participants in the *Baseline* treatment contributed, on average, 31% of their endowment for reductions of greenhouse gas emissions through the European Union Emissions Trading System (EU ETS) in Germany. The corresponding share of non-zero bids was 62%. In contrast, [Falk et al. \(2021\)](#) report a donation rate of about 94% and an average donation of 50% of the endowment in the *Baseline* treatment

⁵ The English translations of the used questions and the treatment texts are shown in the Appendix. The survey itself was conducted in German.

⁶ Please refer to [Table 2](#) in Section 4 for further details.

of their US sample where the recipient of the donation was a charitable organization that fights global warming.

The meta study on dictator games by [Engel \(2011\)](#), which is based on over 130 research papers, provides plausible explanations for the relatively high contributions that we observe.⁷ First, [Engel \(2011\)](#) finds 'dictators' to give more to deserving recipients, which arguably applies to youth libraries. Second, participants who earned the money they are asked to donate, give significantly less ([Engel, 2011](#)). Hence, the windfall money we provide likely contributes to relatively high overall donations. Third, [Engel \(2011\)](#) find one-shot games as well as individual decisions to yield higher contributions than repeated games as well as group decisions. Furthermore, he reports age as well as non-student samples as highly significant determinants of higher charitable giving. Again, all these findings relate to our design.⁸

Various approaches exist for identifying participants' altruistic motives, such as by relying on data about previous donations ([Karlan & Wood, 2017](#)). This paper relies on a survey item from the Global Preferences Survey ([Falk et al., 2018, 2016](#)), which is increasingly used in large-scale economic surveys to elicit respondents' inherent levels of altruism based on a single question (e.g., [Fischer et al., 2021](#); [Lades et al., 2021](#); [Neyse et al., 2021](#)). Thus, we ask our respondents to indicate their level of agreement with the statement "I am willing to give to a good cause without expecting anything in return".⁹ Respondents entered their agreement with the statement on a five-point scale ranging from "totally disagree" to "totally agree". We consider respondents

⁷ Across 616 treatment groups, [Engel \(2011\)](#) reports an average share of positive contributions of 63.9% and average overall donations of 28.4%.

⁸ While the majority of the results by [Engel \(2011\)](#) are supportive for high donations in our study, three of his findings point in the other direction. First, in our experiment donors remain unidentified by the recipient (unless they want their names published). Second, they do not handle real money in terms of coins and notes that they actively have to donate. Third, they can only donate to a single recipient (i.e., one library) instead of two (or more), although one could argue that several children (i.e., multiple recipients) benefit from donations to a single library.

⁹ [Falk et al. \(2018, 2016\)](#) measured unconditional altruism considering the stated willingness to give to good causes without expecting anything in return and a hypothetical donation. Due to time restrictions, our survey considered only the stated willingness to give to a good cause. Furthermore, we slightly adapted the statement and answer categories to our survey design.

to have a high level of altruism if they indicated their agreement with the statement at the two highest answer categories. Falk et al. (2016) empirically analyzed the ability of a wide variety of self-assessments to explain behavior in incentivized experiments and selected those survey items that perform best. According to their validation studies, the survey measure for altruism is highly correlated with charitable giving in laboratory experiments. Therefore, we not only consider the survey question to be a valid measure of high and low levels of altruism but also expect individuals with high-levels of altruism to generally donate significantly more compared to those with a low-level of altruism. Because we placed this question relatively far back in the survey and only after the choice experiment, we are confident that respondents' donation decisions did not affect their responses to it.

Furthermore, while we generally expect all treatments to increase charitable giving (as discussed in Section 2), we are particularly interested in potential heterogeneities across individuals with different levels of inherent altruism. To this end, we can relate to the theoretical model of Andreoni (1989, 1990) to predict that high-level altruists donate more strategically in order to provide a certain public good and low-level altruists to be more responsive to the manipulation effects, because their donation decisions are likely driven by subjective warm-glow feelings. Consequently, we expect that without manipulation (i.e., in the *Baseline*), low-level altruists are more likely to free-ride both qualitatively and quantitatively.

Only for the *Reputation* treatment, we expect no significant interaction effect. Nevertheless, donation decisions are likely driven by alternative motives. We expect low-level altruists to increase giving being particularly attracted by the warm-glow benefits of social recognition (e.g., Ariely et al., 2009) and high-level altruists to strategically give more for the merits of indirect reciprocity induced by social recognition (e.g., Milinski et al., 2002).

In contrast, we expect high-level altruists to be particularly responsive to the *Role model* treatment that promises strategic decision makers an increased donation efficacy through a perceived matching grant by potentially inducing subsequent donations (e.g., Reinstein & Riener, 2012). For low-level altruists existing evidence does not allow a distinct prediction with respect to this treatment. On the one hand, they may be reluctant to donate due to a lack of social rewards or due to a lack of trust that others may follow their example. On the other hand, in case low-level altruists perceive an increase in subsequent donations to foster their own warm-glow utility, they may give more to boost follower donations (e.g., Eckel & Grossman, 2003).

Finally, existing evidence suggests that revealing the previous donations in the *Follow the herd* treatment to have a particularly strong impact on low-level altruists, whose subjective utility can be well-manipulated by creating context-dependent norms (e.g., Konow, 2010). Nevertheless, we also expect high-level altruists to be positively affected by this treatment, as these strategic decision makers might interpret previous donations as quality signal, reducing their perceived uncertainties (e.g., Vesterlund, 2003).

Previous studies have found that altruism is highly correlated with other economic preferences and socio-demographic characteristics (e.g., Falk et al., 2018). Therefore, we also use the follow-up survey to obtain information on respondents' *Risk aversion* and *Patience*, *Trust*, *Age*, *Gender*, educational level (*University degree*, *University qualification*) and income (*High income*, *Income N/A*) and whether they are a *Parent*. Because the donations in our experiment are transferred to a regional organization, we also elicit respondents' *Regional identity*.¹⁰

Table 1 shows the descriptive statistics of the dependent and explanatory variables for the 651 participants. The mean age in our sample is 45 years and is thus similar to the mean age of the population of Kassel (42.6 years) and Kaufungen (46.6 years) (Hessian State Office

¹⁰ For a detailed description of the explanatory variables please refer to Table A.2.

Table 1
Summary statistics - full sample.

| Variable | Count | Mean | SD | Min | Max |
|--------------------------|-------|-------|-------|-----|-----|
| Positive donation | 651 | 0.73 | 0.44 | 0 | 1 |
| Donation (in €) | 651 | 22.87 | 19.31 | 0 | 50 |
| Age | 623 | 45.44 | 17.90 | 18 | 86 |
| Female | 638 | 0.46 | 0.50 | 0 | 1 |
| Parent | 634 | 0.50 | 0.50 | 0 | 1 |
| University degree | 634 | 0.35 | 0.48 | 0 | 1 |
| University qualification | 634 | 0.36 | 0.48 | 0 | 1 |
| Income N/A | 651 | 0.24 | 0.43 | 0 | 1 |
| High income | 651 | 0.31 | 0.46 | 0 | 1 |
| Risk averse | 636 | 0.45 | 0.50 | 0 | 1 |
| Trusting | 630 | 0.15 | 0.36 | 0 | 1 |
| Patient | 630 | 0.74 | 0.44 | 0 | 1 |
| High altruism | 635 | 0.77 | 0.42 | 0 | 1 |
| Regional identity | 651 | 0.51 | 0.50 | 0 | 1 |

of Statistics, 2022b). About 46% of the participants are female; thus, the share of females in our samples is lower compared to females' share in the populations of Kassel (51%) and Kaufungen (51%) (Hessian State Office of Statistics, 2022a). Almost 50% of the respondents indicated having at least one child (i.e., being a parent). With respect to tertiary education, our sample is similar to the population in Hesse. Roughly 35% of the participants indicated having at least a first university degree (Hesse: about 33% - Statistical Offices of the Federation and the Länder, 2021). Furthermore, about 36% of the participants finished their A-levels or have a technical diploma, which qualifies them to study at a university (Hesse: about 51% - Statistical Offices of the Federation and the Länder, 2021).¹¹ In the follow-up survey, we also elicited respondents' monthly net household income. The weighted monthly household income of 31% of our respondents is above €2,000. However, 24% of the participants refused to answer this question.

With respect to economic preferences, 45% are risk averse, 15% are trusting, 74% are patient, and 77% are altruistic.¹² Furthermore, 51% self-identify with their region. The summary statistics of all elicited variables by treatment can be found in Table A.1 in the Appendix. Based on the discussed literature, the relatively high share of individuals considered to have a high level of altruism in our sample – compared to, for example, the sample of Fischer et al. (2021) – might contribute to the rather pronounced donation behavior we observe relative to related studies. Nevertheless, apart from the share of respondents who did not indicate their income, differences in the explanatory variables across treatments are not statistically significantly different from zero, suggesting a successful randomization of respondents into treatments.

4. Results

In the following, we differentiate among three donation variables, namely *overall donation* (the average donation of all respondents, including non-donors), *positive donation* (the share of respondents who were willing to donate, i.e., the extensive margin), and *conditional donation* (the average donation of those who were willing to donate,

¹¹ Please note that the information on the educational levels in Hesse provided by Statistical Offices of the Federation and the Länder (2021) refers to persons aged 25 to 64 years in the year 2020. Thus, the shares for the educational levels may be different in our sample, which contains adults with a minimum age of 18 years.

¹² The level of altruists in our sample is slightly higher, but still comparable to, the share of altruists in representative studies. For example, the sample of German financial decision-makers in Fischer et al. (2021) is characterized by 64% altruistic respondents based on exactly the same survey question we used in our follow-up survey. In addition, 64% are considered as patient and 43% as risk averse.

Table 2
Summary statistics - donation variables.

| Treatment | Positive donation | | Conditional donation | Overall donation |
|-------------------|-------------------|----------------------|----------------------|-----------------------|
| | N | Mean | Mean | Mean |
| a Baseline | 156 | 67% | €29.67 | €19.97 |
| b Reputation | 160 | 65% | €32.74 | €21.28 |
| c Role model | 159 | 81% ^{aa,bb} | €30.98 | €24.94 ^{a,b} |
| d Follow the herd | 176 | 80% ^{aa,bb} | €31.45 | €25.02 ^{a,b} |
| Total | 651 | 73% | €31.21 | €22.87 |

The superscript letters indicate statistically significant differences among the corresponding treatments. Levels of significance: $a,b,c,d < 0.10$; $aa,bb,cc,dd < 0.05$. Tests of significance are based on two-sided non-parametric tests (Pearson chi-squared or Mann-Whitney-Wilcoxon) and are corrected for multiple hypothesis testing by applying the method of Benjamini et al. (2006) as presented in Anderson (2008).

i.e., the intensive margin). Table 2 shows the summary statistics of all three variables by treatment.¹³

In the *Baseline* treatment, around 67% of respondents indicated a positive donation. In addition, the average overall donation was €19.97 and the average conditional donation was €29.67. To test whether the treatments induced variations in donation behavior, we first use two-sided non-parametric tests. To compare the average overall donations and intensive margins, we use Mann-Whitney-Wilcoxon (MWW) tests; for the extensive margins, we use Pearson χ^2 tests.

We find that the overall average donations in the *Role model* treatment (€24.94) and in the *Follow the herd* treatment (€25.02) are significantly higher than in the *Baseline* treatment (€19.97, *Role model*, MWW: $p = 0.053$; *Follow the herd*, MWW: $p = 0.062$). The two treatments are not significantly different from each other, but average donations in both are significantly higher than in the *Reputation* treatment (€21.28, *Role model*, MWW: $p = 0.086$; *Follow the herd*, MWW: $p = 0.090$).

Considering the intensive margins, we find no significant differences across all treatments. This suggests that the treatments affected only the extensive margins, i.e., that the differences that we find for the overall average donations are driven mostly by higher donation rates.¹⁴

In fact, the share of positive donations in the *Baseline* treatment is not significantly different from that of the *Reputation* treatment (65%, Pearson χ^2 : $p = 0.780$), but it is significantly lower than in the *Role model* (81%, Pearson χ^2 : $p = 0.045$) and *Follow the herd* (80%, Pearson χ^2 : $p = 0.047$) treatments. Similar to the overall donations, the extensive margins are not statistically different across the latter two treatment groups. However, they are significantly higher than in the *Reputation* treatment (*Role model*, Pearson χ^2 : $p = 0.028$; *Follow the herd*, Pearson χ^2 : $p = 0.028$).

In a consecutive step, we employ parametric regression models. In particular, we use a linear Cragg hurdle model, which allows us to take into account that decisions at the extensive and intensive margins of charitable giving are made separately but not independently. Table 3 shows the results of the linear Cragg hurdle model,

¹³ See Figure A.1 in the Appendix for the distribution of overall donations by treatment.

¹⁴ This also applies to the willingness to have one's name published in either the *Reputation* or the *Role model* treatment. With respect to the full sample, 19.4% of respondents were willing to publish their name in the *Reputation* treatment, compared to 30.2% in the *Role Model* treatment (Pearson χ^2 : $p = 0.080$). The statistically significant difference diminishes, if we consider the sample more eligible for a publication, namely only those with a positive donation (*Reputation*: 29.8% vs. *Role model*: 35.2%; Pearson χ^2 : $p = 0.473$). Because we observe the willingness to publish one's name in only two of the four treatments, we do not consider this information in our further analysis. P -values are corrected for multiple-hypothesis testing by applying the method of Benjamini et al. (2006) as presented in Anderson (2008).

Table 3
Estimation results - treatments.

| | (1) | (2) | (3) |
|-----------------|---------------------|----------------------|--------------------|
| | Positive donation | Conditional donation | Overall donation |
| Reputation | -0.023 (-0.433) | 3.074 (1.446) | 1.313 (0.603) |
| Role model | 0.132*** (2.693) | 1.3010 (0.660) | 4.969** (2.383) |
| Follow the herd | 0.122** (2.531) | 1.783 (0.896) | 5.049** (2.434) |
| Observations | 651 | 651 | 651 |

Discrete effects of linear Cragg hurdle model estimation results with robust standard errors. Z-values in parentheses. Levels of significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

including binary treatment indicators.¹⁵ In column (1), we present the discrete probability effects with respect to the first hurdle (i.e., the general likelihood to be willing to donate). The results for the second hurdle (i.e., the donation amount) are shown in columns (2) and (3) with respect to the conditional and overall donations. In general, the estimation results confirm the findings from the non-parametric tests. Across both hurdles, we find no differences between the *Reputation* and the *Baseline* treatments. Overall, respondents in the *Role model* and *Follow the herd* treatments donate, on average, €4.97 and €5.05 more than in the *Baseline* treatment, respectively. Furthermore, we find no significant differences across the treatments with respect to the intensive margins of charitable giving. However, focusing on the extensive margins, we find that respondents in the *Role model* and the *Follow the herd* treatments are, respectively, 13.2 and 12.2 percentage points more likely to donate than those in the *Baseline* treatment.

These findings are robust to the inclusion of further control variables (see Table A.4 in the Appendix for a discussion of the corresponding estimation results). As predicted in Section 3, we find that people with a high level of altruism (*High altruism*), have a significantly higher probability to donate (12.3 percentage points) and are also willing to donate significantly more (€3.97), conditional on being willing to donate. These two effects add up to a statistically — as well as economically — significantly higher overall donation of €6.52 on average. This result also suggests that it is relevant to distinguish between donor types with high and low levels of altruism.

The consideration of potential heterogeneities in the effectiveness of different appeals is of great importance for the cost-effectiveness of a charity's fundraising campaign and hence, a central aim of this study. To this end, we include interaction terms between the treatment variables and the *High altruism* indicator in the regression model with all control variables. The estimation results are displayed in Table A.5 in the Appendix.¹⁶ Table A.8 in the Appendix displays the second differences of pairwise treatment comparisons. Overall, we find evidence that individuals respond heterogeneously to some of the treatments depending on their inherent level of altruism.

In our hypotheses in Section 3, we predicted that all treatments would positively influence donation behavior of both, individuals with low and high levels of altruism. We already saw in Table 3 that only in the *Role model* and *Follow the herd* treatments overall donations are significantly higher compared to the *Baseline*. Furthermore, from Fig. 2,

¹⁵ We use the command "churdle linear" in Stata 14 to estimate the model and the command "margins" and "margins, predict(e(0,))" to compute the discrete and marginal effects for the overall and conditional donations, respectively. We obtain the discrete and marginal effects for the first hurdle by estimating a "probit" regression (which represents the first hurdle of a Cragg Hurdle model) and the command "margins".

¹⁶ The predicted mean values for all dependent variables are displayed in Table A.6 in the Appendix. Table A.7 in the Appendix shows the corresponding discrete effects of *High altruism* for each treatment.

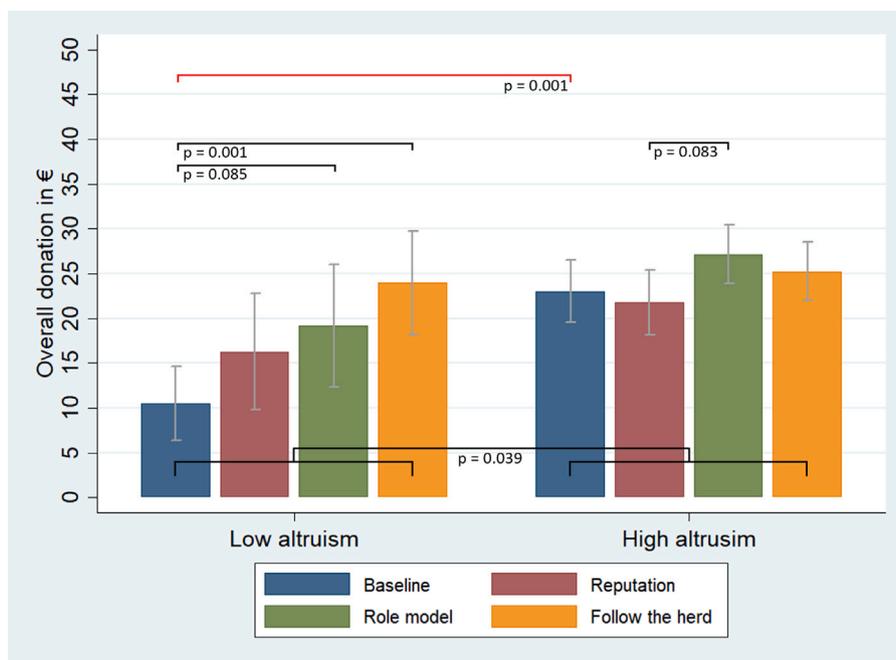


Fig. 2. Interaction effects on overall donations

The graph illustrates the predicted mean overall donations for respondents with low and high levels of altruism by treatment. The error bars indicate the 95% confidence intervals. All values are based on the estimation results shown in Table A.5 and are displayed in Table A.6 in the Appendix. Second differences are displayed in Table A.8 in the Appendix. *P*-values are indicated only for significant differences and are corrected for multiple-hypothesis testing by applying the method of Benjamini et al. (2006) as presented in Anderson (2008).

which illustrates the predicted mean overall donations for respondents with low and high levels of altruism by treatment, it is apparent that these differences are in fact only significant for participants with a low level of altruism (left panel).¹⁷ Furthermore, differences in overall average donations across low-level and high-level altruists are only significant in the *Baseline* treatment.¹⁸ With respect to heterogeneous treatment effects, we find the difference between overall donations in the *Baseline* and the *Follow the herd* treatment to be significantly higher for low-level altruists compared to high-level altruists.

Fig. 3 illustrates the predicted extensive margins of charitable giving for respondents with either low or high levels of altruism across treatments based on Table A.5. It is striking that only in the *Role model* treatment the probability to donate is statistically significantly higher for the *High altruism* group compared to the *Low altruism* group (26.4 percentage points; $p = 0.022$). Furthermore, for respondents with a low level of altruism (left panel), the probability to donate is highest in the *Follow the herd* treatment (83%), which is significantly higher compared to all other treatments. In contrast, participants with a high level of altruism (right panel) have the greatest predicted likelihood to donate in the *Role model* treatment (87%). This share is significantly higher compared to the *Baseline* (72%) and the *Reputation* treatment (66%). The latter is also significantly lower than the share in the *Follow the herd* treatment (83%). Finally, the difference at the extensive margin between the *Role model* and the *Follow the herd* treatments is significantly higher for low-level altruists compared to high-level altruists.

Fig. 4 illustrates the predicted intensive margins of charitable giving for respondents with low and high levels of altruism across treatments

¹⁷ In addition, the difference in overall average donations we found between *Role model* and *Reputation* are only significant for high-level altruists (right panel). Finally, the difference between *Follow the herd* and *Reputation* is insignificant for either of the two subgroups.

¹⁸ This difference is likely driven by the significant difference at the intensive margin (Fig. 4). In particular, as the difference at the extensive margin is insignificant (Fig. 3).

based on Table A.5. At the intensive margin, the difference between the two altruism types is only significant in the *Baseline* treatment. For the *Low altruism* group (left panel), the intensive margins are significantly higher in all treatments compared to the *Baseline*. In contrast, we find no statistically significant differences in conditional donations for the *High altruism* group across all treatments (right panel).¹⁹ Thereby, Fig. 4 nicely depicts the significant interaction effects we find with respect to the intensive margin. Namely, the differences between *Baseline* and *Role model* as well as *Baseline* and *Follow the herd* are significantly higher for low-level altruists compared to high-level altruists.

5. Discussion

In line with the related literature (e.g., Reinstein & Riener, 2012), the *Role model* and the *Follow the herd* treatments increased overall giving, on average, for all respondents. In our experiment, both treatment effects are particularly driven by increased extensive margins (see Table 3). Regarding the *Reputation* treatment, however, our results contradict previous findings that the option to publicize one's contribution enhances individuals' overall donations (e.g., Winterich et al., 2013) or extensive margins (Alpizar & Martinsson, 2013). Furthermore, none of the manipulations significantly influenced the intensive margin of charitable giving, on average, when we consider the total sample.

Differentiating between individuals with low and high levels of altruism our findings are in line with the predictions derived from the theoretical model of impure altruism by Andreoni (1989, 1990). Without manipulation (i.e., in the *Baseline*), respondents with a high level of altruism donate more overall and also conditional on making a positive donation.²⁰ Consequently, however, we have to acknowledge

¹⁹ Given the higher share of individuals with a high level of altruism in our sample, these findings likely drive the general results, where we also find no differences across treatments with respect to the intensive margins (Table 3).

²⁰ High-level altruists also donate more frequently than low-level altruists, although the difference is not statistically significant ($p = 0.233$).

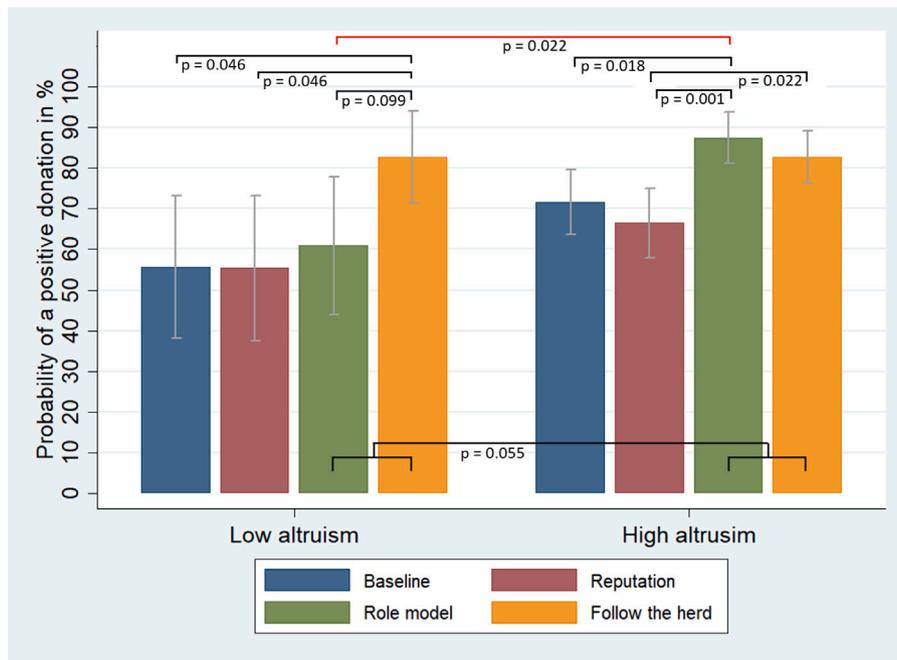


Fig. 3. Interaction effects on extensive margin

The graph illustrates the predicted extensive margins of charitable giving for respondents with low and high levels of altruism by treatment. The error bars indicate the 95% confidence interval. All values are based on the estimation results shown in Table A.5 and are displayed in Table A.6 in the Appendix. Second differences are displayed in Table A.8 in the Appendix. P-values are indicated only for significant differences and are corrected for multiple hypothesis testing by applying the method of Benjamini et al. (2006) as presented in Anderson (2008).

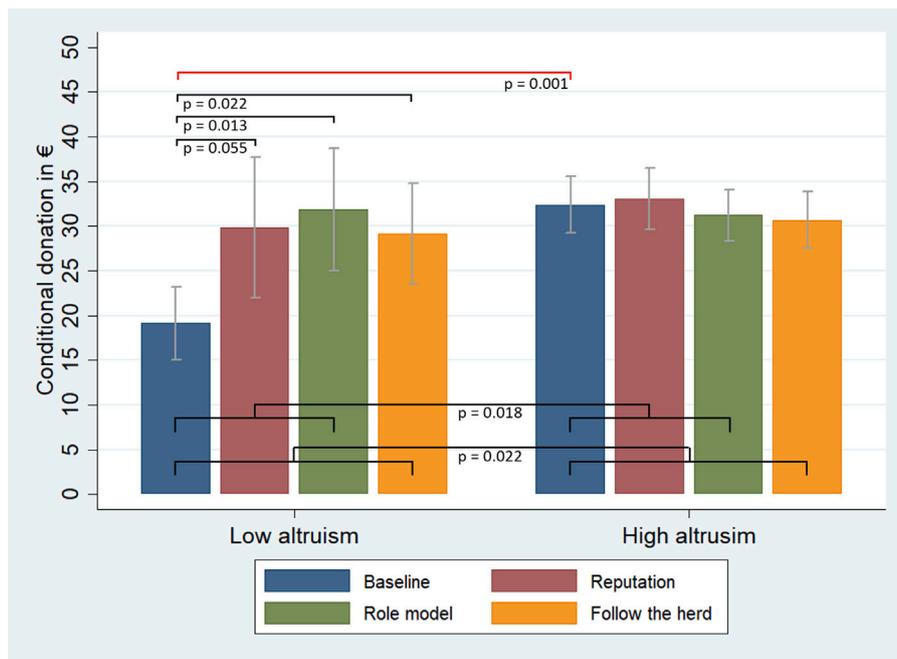


Fig. 4. Interaction effects on intensive margin

The graph illustrates the predicted intensive margins of charitable giving for respondents with low and high levels of altruism by treatment. The error bars indicate the 95% confidence interval. All values are based on the estimation results shown in Table A.5 and are displayed in Table A.6 in the Appendix. Second differences are displayed in Table A.8 in the Appendix. P-values are indicated only for significant differences and are corrected for multiple hypothesis testing by applying the method of Benjamini et al. (2006) as presented in Anderson (2008).

that the detected heterogeneous treatment effects could potentially be caused by a ceiling effect, i.e., that individuals with a high-level of altruism are limited in their capability to deviate from the *Baseline* compared to low-level altruists. Nevertheless, as high-level altruists

donated less than half of their potential win (46%), on average, in the *Baseline*, we are confident that there would have been sufficient room for increased donations in all treatments. In addition, that we find none of the treatments to increase the average overall donations

of individuals with high levels of altruism is in line with Landry et al. (2010), who found warm-list donors – that are likely more altruistic – to be unresponsive to unconditional gifts.²¹

We hypothesized in Section 3 that we do not expect heterogeneous effects with respect to the *Reputation* treatment across individuals with varying levels of altruism, as high-level altruists would be equally attracted by the merits of indirect reciprocity, as low-level altruists would be driven by the emotional reward of social recognition. Against this reasoning, it is surprising that the *Reputation* treatment has no overall effect on either type of donors.²² However, the peculiarities of our treatment design may provide an explanation for this deviation from the literature. Because respondents were likely unfamiliar with the university's homepage and its press releases where they were to be listed as donors, or because they may not expect others to read such media, the treatment may not have provided them a sufficient opportunity to build reputation. Dannenberg, Johansson-Stenman, and Wetzel (2022) present another potential reason, by arguing that the opportunity to repeatedly signal to others within ones' social environment is likely a greater incentive to donate than a one-time chance to signal to a potentially larger but unrelated group of people.

Potentially perceiving the *Role model* treatment as a matching grant opportunity, as proposed by Reinstein and Riener (2012), respondents with high-levels of altruism donate significantly more frequently in the *Role model* treatment compared to the *Baseline* and compared to low-level altruists (Fig. 3). Yet, they do not donate significantly more, conditional on making a donation. Furthermore, we find no significant interaction effect with respect to the extensive margins and overall donations.²³ In fact, and in contrast to our prediction, we find significant heterogeneities only at the intensive margin in a way that individuals with a low-level of altruism respond significantly stronger to the treatment than individuals with a high-level of altruism (Fig. 4), which supports the proposal of Eckel and Grossman (2003) that perceived matching grants also positively affect a donors' feeling of warm-glow.

Furthermore, our results suggest that the role models' motivation to attract a larger number of follow-up-donors by setting a positive example (as argued by Reinstein & Riener, 2012) is successful with respect to individuals with low levels of altruism.²⁴ In addition, in the *Follow the herd* treatment individuals with low levels of altruism donate significantly more at the intensive margin and overall compared to the *Baseline*. In fact, the latter two treatment effects are significantly greater for individuals with low levels of altruism than for individuals with high levels of altruism (Fig. 2, Fig. 4). This is in line with our prediction derived in Section 3, i.e., that low-level altruists are more responsive to context-dependent norms (e.g., Konow, 2010).

²¹ Nevertheless, the information treatment used by Karlan and Wood (2017) increased donations of individuals considered as highly altruistic and is thus a potential approach for reaching such donors.

²² Referring to the intensive margins, our results confirm existing evidence from the literature suggesting that reputation-seeking increases giving (e.g., Glazer & Konrad, 1996; Harbaugh, 1998a), but only for low-level altruist. In contradiction to previous findings (e.g. Alpizar & Martinsson, 2013; Bénabou & Tirole, 2006) we did not find the *Reputation* treatment to increase extensive margins for both types of altruists (see Fig. 3).

²³ Disentangling the findings of Reinstein and Riener (2012), this suggests that the generally higher donations they find for 'role models' are driven by high-level altruists being more likely to donate and low-level altruists giving higher intensive margins.

²⁴ On the one hand, this is in contrast to Karlan and Wood (2017), who found that additional information about a charity's impact backfired in terms of donation rates and donation amounts among individuals considered as low-level altruists. On the other hand, that we find social information to increase donation rates, as well as conditional and overall donations of low-level altruists to be on par with those of high-level altruists is comparable to the findings of Landry et al. (2010), who found that unconditional gifts lead to an alignment in donations from cold-list and warm-list donors.

According to the definition of Dannenberg, Gutsche, et al. (2022), the "donation list" we presented to respondents in the *Follow the herd* treatment represents an objective social descriptive norm. To this end, several channels can stimulate respondents to behave in line with that social norm. For example, the "donation list" may be a moral reference point that influences the participants' judgement of appropriate behavior and, thereby, their donation behavior. The provision of the "donation list" by the experimenter may also signal information about the trustworthiness of the donation recipient (or the experimenter themselves). In this case, respondents would comply with the norm based on the assumption that prior donors made appropriate and well-reasoned decisions. Furthermore, because we find no significant differences between the average donations of all participants in the *Follow the herd* treatment and the donations on the "donation list" (MWW: $p = 0.314$), imitation and conformity are likely drivers of the observed donation behavior, which not only confirms our expectations, but is also in line with the findings of Jones and Linardi (2014).²⁵ In addition, personal enforcement (e.g., by avoiding feelings of guilt or by feeling pride) may be one factor that drives donation behavior (Dannenberg, Gutsche, et al., 2022).²⁶

As discussed by Allcott (2011), theoretical models predict what several empirical papers have found (e.g., Richter et al., 2018; Schultz et al., 2007; Yakobovitch & Grinstein, 2016): a so-called "descriptive norm boomerang effect". In our case, this would imply that those who have donated little before will, on average, increase their donations, whereas those who donated a lot before will, on average, reduce their donations in order to conform to the norm. However, whereas respondents with low levels of altruism donate, on average, significantly less in the *Baseline* treatment than the average overall donations displayed in the "donation list" (MWW: $p = 0.008$), this difference is not significant for high-level altruists (MWW: $p = 0.142$).²⁷ Therefore, it is no surprise that we find the social norm to be merely ineffective in promoting donation behavior among respondents with high levels of altruism and not a complete boomerang effect, as these individuals do not need to change their average donation behavior in order to conform to the social norm. Nevertheless, the *Follow the herd* treatment increases overall donations among those with low levels of inherent altruism up to a level where their overall donations as well do not, on average, differ from the norm.²⁸

Finally, we find significant heterogeneity between the *Role model* and the *Follow the herd* treatment across individuals with low and high levels of altruism at the extensive margin (see Fig. 3, or Table A.8 in

²⁵ This also holds true if we differentiate between respondents with high (MWW: $p = 0.293$) and low (MWW: $p = 0.385$) levels of altruism. Nevertheless, we cannot rule out that some respondents in the *Follow the herd* treatment may have a desire to stand out. All p -values are corrected for multiple-hypothesis testing by applying the method of Benjamini et al. (2006) as presented in Anderson (2008).

²⁶ Social enforcement (i.e., receiving social approval as well as avoiding disapproval and punishment from observing others — in our case, the experimenter alone), may be another — albeit presumably less likely — factor that motivates respondents to behave in line with the social norm (Dannenberg, Gutsche, et al., 2022).

²⁷ P -values are corrected for multiple hypothesis testing by applying the method of Benjamini et al. (2006) as presented in Anderson (2008).

²⁸ We must acknowledge that these findings may be attributed to the particular characteristics of the treatment. In contrast to other social norm interventions, we do not confront respondents with the average of prior donations, but rather with a complete "donation list". In particular, the displayed values ranging from €0 to €50 as well as the standard deviation of €15.21 (around a mean of €27.44) make this descriptive social norm quite heterogeneous. In fact, we cannot rule out that participants rely on heuristics to derive a perceived norm from the "donation list" (e.g., they may look only at the first line, approximate an average, or pay particular attention to certain names). For those who do rely on heuristics, the treatment may, in fact, evoke a subjective social norm.

the Appendix). This implies that the difference in impact on the likelihood to donate between setting a social norm (i.e., providing social information) and being confronted with such, is significantly different, depending on respondents' inherent level of inherent altruism.

6. Conclusion

We conducted a framed field experiment to analyze the interaction between different appeals made to individual donors and their inherent level of altruism. In addition to a *Baseline* treatment, which asks only for the donation decision, we employed three different appeal strategies (i.e., *Reputation*, *Role model*, and *Following the herd*). With respect to their evaluation, we differentiate between the likelihood to donate, the conditional donation, and the resulting overall donation.

Overall, respondents with a high level of altruism not only donate more frequently, but also make significantly larger conditional donations. However, we find considerable heterogeneity in treatment effects. For the *Role model* and *Follow the herd* treatments, we find respondents with low levels of altruism to respond significantly stronger than respondents with high levels of altruism at the intensive margin. With respect to the *Role model* treatment, this also holds true for overall donations. Regarding extensive margins, we find individuals with high levels of inherent altruism to be significantly more likely to donate in response to the *Role model* treatment than individuals with low levels of inherent altruism. Furthermore, we find a significant interaction effect between the level of altruism and the *Role model* vs. *Follow the herd* treatment at the extensive margin of charitable giving, bridging the gap between low and high-level altruists present in the former treatment.

Overall, our results underline the importance of considering the inherent level of altruism in individuals when selecting tools to stimulate charitable giving - in particular, because the level of altruism can be linked to predominantly strategic vs. predominantly subjective decision-making types which, in turn, are driven by different psychological channels.²⁹ For an audience of highly altruistic respondents, providing the opportunity to set a positive example for others appears to be the most promising approach among the considered treatments. On the other hand, for charities approaching individuals with lower levels of altruism, providing them with a set of positive examples may be the most suitable strategy. Thus, using social information as an appeal to donors can yield a double dividend by attracting both groups of individuals.

Against the background of our results, a charity that restricts its target group to warm-list donors may miss out on a significant potential for fundraising. In fact, when we consider cold-list donors as potentially less altruistic, providing the growing group of Germans who do not donate (see Section 1) information on the prior donations of others, may be a cost-effective tool to restore earlier shares of active donors without affecting the donation behavior of those who already donate. At the same time, by considering warm-list donors as being potentially more altruistic, offering this shrinking - but more potent - share of active donors in Germany (see Section 1) the opportunity to be a role model for others may sustain or even enhance their donation behavior.³⁰

²⁹ Unfortunately, we are unable to identify specific channels based on the presented analysis. For example, we cannot distinguish different forms of image concerns, which may vary across altruism types and may therefore help explain our heterogeneous treatment effects. A sophisticated measure of image concerns within a similar experimental design could therefore be an interesting avenue for future research.

³⁰ It should be noted, however, that our donation rate reflects an upper bound of the reality because we use "windfall money" and actively ask for a donation, which does not allow respondents to circumvent the donation decision. For example, in their field experiment using Salvation Army bell-ringers at the doors of a supermarket, Andreoni et al. (2017) show that individuals try to avoid being asked to donate and that active asking, as well as a reduction of sorting opportunities, drastically increase donations.

Knowing beforehand whether a potential donor has a lower or a higher level of altruism - and adapting the individual appeal to them accordingly - can significantly enhance charitable giving in the future. Relying on warm-list and cold-list donors may be a suitable approximation for this differentiation between low- and high-altruism individuals. However, further research is needed to substantiate this conclusion. At the same time, it appears to offer a promising premise for future studies.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

Acknowledgments

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Appendix A. Supplementary data

Supplementary material related to this article can be found online at <https://doi.org/10.1016/j.socec.2023.101991>.

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